Challenges and key interventions to transition to sustainability in Indonesia and Malaysia

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This report is the third in a series of three reports authored by CIFOR-ICRAF on palm oil sustainability in Indonesia and Malaysia. The information contained in each report builds upon the previous ones, which can be referred to for background and context.

Cover photo: Aerial view of the landscape around Halimun Salak National Park, West Java, Indonesia. Photo by Kate Evans/CIFOR

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Table of contents

Executive summary

The global demand for and production of palm oil continues to grow and has placed the commodity at the centre of controversies surrounding economic, social, and environmental challenges and opportunities. This has resulted in a call for sustainable and deforestation-free palm oil. With around 85% of palm oil produced in Indonesia and Malaysia and significant amounts of production done by smallholders, these two countries are often in the spotlight and will be impacted the most should the demand for this commodity change.

This study identifies challenges and examines the needed interventions to achieve sustainability, especially those focusing on smallholders and at the subnational jurisdictional level. Interventions are defined as incentives, disincentives, and/or enabling measures through initiatives, programs, and policies with goals and aims for sustainability. This study addresses the following questions: (1) What are the challenges related to sustainability faced by the palm oil sector? and (2) what are the key interventions needed to lift jurisdictions/districts and especially independent smallholders to sustainability?

Based on a literature review of studies conducted in Indonesian and Malaysia and focus group discussions and interviews with key stakeholders, this study identifies challenges and some key interventions that can support jurisdictions, particularly smallholders, in transitioning to sustainability.

Key challenges identified across various jurisdictions in Indonesia include (a) conflicting interests and objectives, (b) weak monitoring, reporting and verification (MRV) capacity, (c) lack of technical capacity, (d) land legality issues associated with oil palm plantations overlapping state forestlands (*kawasan hutan*) and (e) ineffective governance. Indonesia's smallholders are challenged by limited financial support, weak land tenure or unclear land legality, and lack of good agriculture knowledge and environmental awareness.

Key interventions needed to lift jurisdictions/districts/states and especially independent smallholders to sustainability in Indonesia are (1) clarifying land legality and tenure rights issues over oil palm plantations overlapping state forestlands (*kawasan hutan*), (2) capacity building to enhance the capacity of smallholders to increase crop productivity, strengthen farmer institutions or groups (collective action), adopt good agricultural practices (GAP) and comply with sustainability standards, and (3) low-carbon and green economy development at national and sub-national levels. Though interventions addressing these aspects already exist, through the data collected, specific pathways for improvements on effectiveness and reach of these interventions were identified. Suggested pathways include:

- Better coordination between stakeholders including the establishment or reactivation of multi-stakeholder forums advancing sustainability in the palm oil sector and jurisdictions,
- Inclusion and better representation of various stakeholders in these forums,
- Establishment of taskforces and coalitions to resolve urgent matters related to land use conflicts,
- Investment in long-term capacity building that uses appropriate terms and language for smallholders and subnational government agencies,

- Use of the mandatory Indonesian Sustainable Palm Oil (ISPO) certification as an incentive for smallholders to adopt sustainable practices (so they can continue to legally access palm oil markets), and
- Public-private partnerships to align goals, access financing, and increase reach/effectiveness.

Positive lessons can be drawn from jurisdictions establishing multi-stakeholder forums and public-private partnerships addressing sustainability. East Kalimantan's communication forum for sustainable plantations established through a Governor's decree, for example, has led to the successful issuance of operational guidelines for identification of high conservation value (HCV) areas.

Key challenges in Malaysia include a lack of transparency and varied perception on data and processes among government agencies, conflicting interests, and objectives for different approaches to sustainability, lack of coordination among government agencies, land tenurial conflict and lack of implementation and enforcement of legal frameworks, and lack of budget and capacity. Smallholders in Malaysia are challenged by a lack of knowledge on GAP resulting in low productivity, lack of environmental awareness and education, and labour shortage. Additionally, the decline in budget allocation for research and development, weaknesses in implementation of existing regulations, and limited support for smallholder capacity building are also cited as challenges.

Key interventions needed in Malaysia are: (1) improving transparency and communication with external markets and actors, (2) capacity building and trainings for smallholders and other actors, and (3) strengthening supporting for conservation initiatives related to palm oil industry. Similar to Indonesia, interventions as those identified here already exist but they need to be strengthened or expanded. Suggested pathways for improvement based on the data collected include:

- Multi-stakeholder partnerships that include NGOs,
- Public-private partnerships to align goals, access financing, and increase reach/effectiveness,
- Communications with international consumers/buyers regarding sustainability efforts that are backed by expansion of and added dimensions to existing enforcement and monitoring mechanisms (e.g., Malaysian Sustainable Palm Oil - MSPO Trace) that are transparent,
- Long-term capacity building that uses appropriate terms and language for smallholders and local government agencies (e.g., through the expansion of MPOB TUNAS), and
- More funding and alignment with other initiative implementers (i.e., private sector, NGOs) to support conservation initiatives such as the Malaysian Palm Oil Green Conservation Fund.

Interventions discussed here would help in addressing some of the key challenges identified in both Indonesia and Malaysia. Further, these interventions if implemented effectively would support implementation of certification systems (e.g., ISPO, MSPO, RSPO) and the progress towards jurisdictional sustainability in both countries by fostering the enabling conditions/key elements of a jurisdictional approach.

Abbreviations and acronyms

ATR/BPN	Kementerian Agraria dan Tata Ruang/Badan Pertanahan Nasional, National Land Agency/Ministry of Agrarian Affairs and Spatial Planning
BAPPENAS	Badan Perencanaan Pembangunan Nasional, National Development Planning Agency
BPDPKS	Badan Pengelola Dana Perkebunan Kelapa Sawit, Palm Oil Fund Management Board
CPO	Crude Palm Oil
CSO	Civil Society Organization
CSPO	Certified Sustainable Palm Oil
FFB	Fresh Fruit Bunch
FPIC	Free, Prior and Informed Consent
GTRA	Gugus Tugas Reforma Agraria, Agrarian reform taskforce
HCS	High Carbon Stock
HCV	High Conservation Value
ISCC	International Sustainability & Carbon Certification
ISH	Independent Smallholder
ISPO	Indonesian Sustainable Palm Oil
MPIC	Ministry of Plantation Industries and Commodities
MSPO	Malaysian Sustainable Palm Oil
NGO	Non-Governmental Organization
RPJMD	Rencana Pembangunan Jangka Menengah Daerah, Regional mid-term development plan
RSPO	Roundtable on Sustainable Palm Oil
SEIA	Social and Environmental Impact Assessment
SPKS	Serikat Petani Kelapa Sawit, Oil Palm Farmers Union (Indonesia)
STDB	Surat Tanda Daftar Budidaya, Plantation register letter for smallholders
TORA	Tanah Obyek Reforma Agraria, Lands of agrarian reform object

1. Introduction

The global demand for and production of palm oil continues to grow and has placed the commodity at the centre of controversies surrounding economic, social, and environmental challenges and opportunities. Palm oil is widely used in both the food and non-food sectors, including as biodiesel, but has also been identified as one of seven major globally traded commodities that place increasing pressures on forests across landscapes in the tropics and subtropics (Wardell et al. 2021). The demand and ubiquity of palm oil have led to concerns over links to impacts on the environment, labour exploitation, and illegal practices (Ching et. al. 2019). With 85% of palm oil being produced in Malaysia and Indonesia, the two largest palm oil producers globally, these countries are often in the spotlight regarding oil palm policies and agricultural practices. Smallholders, both independent and organized, play a large role in managing oil palm production areas in both Indonesia (40%) and Malaysia (35%) but face issues regarding low yields (Rahman 2020; Suhada et al. 2018) have been identified as key in transition to sustainable palm oil.

Due to these links and concerns, there is growing pressure from civil society organizations (CSOs), consumers, and others to source only sustainable and deforestation-free palm oil. Given this, many interventions to promote sustainable production of palm oil, and, more broadly, transition to sustainability exist in Indonesia and Malaysia. However, the transition to sustainability is not without challenges and specific types of interventions are needed to address the challenges and help stakeholders adopt sustainable practices. As part of the KAMI project[1], expanding on the identification of existing support and interventions, CIFOR-ICRAF[2] collected information on needed interventions and challenges or barriers within Indonesia and Malaysia in transitioning to sustainability[3]. Through interviews and consultation of relevant stakeholders, this study identifies challenges and examines the most effective and efficient interventions to lift jurisdictions (i.e., provinces/states and districts), especially smallholders, to sustainability.

Interventions at the subnational jurisdictional level are especially considered throughout. Interventions are defined as incentives, disincentives, and/or enabling measures through initiatives, programs, and policies with goals and aims for sustainability. The study analysis takes into account the key elements or enabling conditions identified in the literature for subnational jurisdictional level[4] interventions (i.e., through implementation of jurisdictional approaches) to be established, fostered, and successful (Paoli et al. 2016, EII 2017, ISEAL

[1] This report is part of the broader EU-funded KAMI ("Sustainability of Malaysian and Indonesian palm oil") project that aims to support national processes and international dialogue on the sustainable use of natural resources with a specific focus on palm oil. This includes informing on existing support for sustainability and helping to establish a palm oil sustainability monitoring system at the jurisdictional or district level that can provide reliable information for due diligence processes.
[2] Center for International Forestry Research – World Agroforestry Center
[3] Considers the economic, environmental, and social aspects of a sustainable palm oil value chain that is inclusive, reduces pressure on forests/deforestation-free, protects the environment, and promotes responsible business practices.
[4] A focus at the jurisdictional level or within political boundaries (i.e., national, state/province, district) facilitates strategic alignment of initiatives and implementation with public policies and allows governments to lead or play an active role (Boyd et al. 2018; Stickler et al. 2018). Jurisdictional sustainability is when a given political administrative unit has achieved wall-to-wall sustainability – usually through a jurisdictional approach. Jurisdictional approaches are a holistic attempt to address environmental and development trade-offs by operating across multiple objectives, scales, and sectors (Sayer et al., 2013).

2020, Seymour et al. 2020, Stickler et al. 2018): (1) shared understanding and trust - sufficient level of mutual understanding and trust to work together effectively; (2) multi-stakeholder processes and governance – active engagement and commitment of key stakeholders across sectors and levels to agree upon action plans and outcomes, well-defined operating procedures, roles, and responsibilities; (3) planning and effective implementation – goals, outcomes, timebound targets are defined for the jurisdiction, action plans to achieve goals and outcomes, integrated system of incentives, policies on land use/spatial planning and recognition of rights; (4) monitoring and reporting systems - a framework to monitor, manage and analyse information on performance in the landscape to communicate results, needs to be transparent, include verification and traceability; (5) financing – sufficient secured budget or identified resources.

This study addresses the following questions: (1) what are the challenges related to sustainability faced by the palm oil sector?; and (2) what are the key interventions needed to lift jurisdictions/districts and especially independent smallholders to sustainability? This includes considerations of the most effective and efficient interventions based on factors such as legal feasibility, political viability, sustainability, social/cultural feasibility, technical feasibility, administrative feasibility, cost effectiveness, and economic efficiency.

2. Study approach

To address the research questions, this study utilized multiple methods, including focus group discussions (FGDs), interviews, and literature review. Three FGDs were conducted in each country with representatives from key government institutions and development partners, and other relevant stakeholders. Further, interviews with experts or stakeholder representatives were conducted if they were unable to attend the FGDs (see Appendix 1 for full list of stakeholders engaged).

As it would not be feasible to engage all oil palm producing provinces/states and districts in both countries through the FGDs, CIFOR-ICRAF utilized a case study-based approach to identify challenges and support needed to address these challenges. Jurisdictions included in this study refer to provinces and districts in Indonesia, and states and districts in Malaysia. Examining these subnational levels enables for a better understanding of the complexities around sustainability challenges and potential ways of dealing them, especially since the decision-making power for various aspects of the oil palm sector exists at these levels. The jurisdictions were selected based on factors such as oil palm extent/coverage area, deforestation rate, amount of remaining forest, number of independent oil palm smallholders, and CIFOR-ICRAF experience. In Indonesia, selections include the provinces of East Kalimantan, Central Kalimantan, North Kalimantan, South Sumatra, Riau, and West Papua and the districts of Siak (Riau), Pulang Pisau (Central Kalimantan), Sintang (West Kalimantan), Kotawaringin Barat (Central Kalimantan), Kutai Kartanegara (East Kalimantan), and Berau (East Kalimantan). In Malaysia, the selected jurisdictions include the states of Johor, Perak, Sabah, and Sarawak and the districts of Bintulu and Serian (Sarawak), Tongod and Kinabatangan (Sabah), Kota Tinggi and Segamat (Johor), and Kampar and Manjung (Perak). See Appendix 2 for key figures on selected provinces and states.

Drawing on the work of CIFOR-Earth Innovation Institute (EII)[5] assessing progress to low emission/sustainable development, an initial list of challenges was created based on those identified for Indonesian and Malaysian sub-national jurisdictions. Using this list as a prompt for discussion during the FGDs, participants were asked to either select challenges they or their institutions have faced in moving to sustainability or add to the list. These identified challenges were supplemented through a literature review of studies focusing on smallholders in Indonesia and Malaysia. Studies for the literature review were identified through a search[6] for articles published between 2010-2022 on Clarivate Web of Science. The search terms did not include a limitation for oil palm, but rather the results were filtered manually by two CIFOR-ICRAF researchers for those focusing on oil palm smallholders or farmers to ensure that studies including such information are not accidently omitted.

During the FGDs, participants were also asked to identify any needed or missing initiatives, strategies, policies, or regulatory frameworks that would support the transition to sustainability. During the discussions, participants were encouraged to further elaborate challenges and cite relevant examples, whenever appropriate. An additional literature search was conducted to identify information on the efficiency and effectiveness of the interventions identified by the FGD participants as “needed”.

[5] https://www.cifor.org/knowledge/publication/6999/
[6] Search terms: (ALL=(challenges)) AND (ALL=(sustainability) OR ALL=(sustainable)) AND (ALL=(indonesia) OR ALL=(malaysia)) AND (ALL=(smallholder) OR ALL=(farmers))

3. Challenges to sustainability

A global study (Stickler et. al 2018) examining the progress to low-emission development at the sub-national (jurisdictional) level identified several common challenges across multiple countries. Relevant identified challenges include long-standing and complex tensions of power over territory between sectors with conflicting priorities; limited technical capacity and financing; issues related to indigenous rights remain unaddressed; missed opportunities due to private sector activities being insufficiently aligned with relevant policies and agendas; and insufficient incentives or limited market access for sustainable commodities due to associated value chains being underdeveloped. The challenges identified within the jurisdictional profiles[7] for progress towards jurisdictional sustainability for five provinces in Indonesia and one state in Malaysia are categorized and summarized in Table 1.

In addition to challenges identified based on the jurisdictional profiles, this study conducted a literature search using the Web of Science to identify challenges specifically facing oil palm smallholders in transitioning to sustainability. Filtering the initial search results to those containing relevant information led to the identification of 22 journal articles that explored or discussed challenges faced by oil palm smallholders or farmers in Indonesia and Malaysia. The findings from these 22 articles are summarized in Table 2, including the identified challenge(s) in each article and the location of the study area/smallholders. However, it is important to note that only five (5) of the 22 studies include or address Malaysia. Though not found through the Web of Science, three additional articles were identified that highlight a challenge that smallholders in Malaysia are facing: lack of knowledge of good agricultural practices (GAP) resulting in low productivity. Smallholders' lack of knowledge about GAP leads to non-competitive production with low yields and low-quality fresh fruit bunches (FFB). In a study of 400 smallholders across all Malaysian states, only 26% have complied with GAP criteria (Mansor 2021). The average FFB yield of independent smallholders ranges from 15.4 tons/ha/year in Sabah to 19.1 tons/ha/year in Peninsular while the national average yield is 18.2 (Sahidan et al. 2021).

The results show some similarities in the challenges identified at the jurisdictional and the oil palm smallholder/farmer level, specifically the lack of technical capacity, lack of budget, and land tenure/legality. Further, participants engaged during FGDs and interviews identified similar challenges as those identified through publications, these findings are detailed in Sections 5.1 and 5.2.

[7] These are short summaries or briefs that have been complied about the status of progress towards jurisdictional sustainability.

Table 1. Summary of challenges identified for select provinces/states in Indonesia and Malaysia. Green coloured cells in a column for the provide indicate the identification of that challenge.

Challenge	Indonesia					Malaysia
	Aceh	East Kalimantan	West Kalimantan	North Kalimantan	West Papua	Sabah
Lack of transparent system and/or clarity over control and oversight of sustainability policy implementation						
Budget constraint						
Conflicting interest and objectives						
Weak monitoring, reporting & verification capacity						
Lack of participation or diverse representation						
Lack of technical capacity						
Legal framework for sustainable policy implementation						
Administration changes from local elections						
Tenurial conflict						
Limited synergy & lack of coordination						
Lack of commitment/political will						
Weaknesses in law enforcement						
Limited extension services or technical assistance						
Source	Komalasari et al. 2018b	Komalasari et al. 2018c	Peteru et al. 2019	Komalasari et al. 2018a	Pulungan et al. 2020	Bahar 2018

Table 2. Challenges facing oil palm smallholders or farmers identified in the literature

Article	Identified challenges	Challenges details	Study location
Apriani et al. 2020	Organizational support	Needs for financial support as well as knowledge support to continue with certification	Jambi, Indonesia
Baudoin et al. 2015	Cost and access to certified materials	High cost of inputs (fertilizers) and certified planting materials for plasma plots. Unselected planting materials and seeds, as well as poor quality of soil among independent smallholder plots	Riau Province, Indonesia
Bugum et al. 2019	Lack of environmental awareness and education	Palm trees are nourished with fertilizers which are detrimental for the environment	Malaysia
Daeli et al. 2021	Fire is still part of cultural system	Fire remains an important tool to reduce vegetation and create fertilizer for the ancestor rice seeds	West Kalimantan, Indonesia
Dharmawan et al. 2021	Structural and socio-cultural challenges	Absence of land legality, having no business registration letter, lack of capacity in farming organization, and low capacity of environmental and plantation management	East Kalimantan, Indonesia
Elhadary et al. 2013	Labor shortage	Shortage of local (domestic) labors to work in agriculture	Seberang Perai region, Malaysia
Guillaume et al. 2016	Erosion and reestablishment of new plantations on a previously degraded land (e.g., rubber) due to land scarcity	Degraded land where smallholders planted oil palm contains low carbon content and high bulk density, low levels of soil fertility – limiting potential for intensification and higher yields	Jambi and Central Sumatra, Indonesia
Hutabarat et al. 2018	Cost of certification	Negative income effects in the first year after certification and other certification-related costs	Ukui District, Indonesia
Jelsma et al. 2017	Informality and poor production practices	Access to credit, production inputs, and knowledge	Rokan Hulu District, Riau, Indonesia
Lakitan 2018	Budget limitations	Decline of budget allocation for research and development activities in agriculture	Malaysia
Lee et al. 2011	Cost, institutional capacity, incentives, organization, support	High certification costs, insufficient institutional capacity, inadequate financial and social incentives, poor group organization, and lack of external support	Indonesia
Lee et al. 2014	Low yield and income, limited training and access to inputs	Support and access to training and agricultural inputs, as well as to palm oil mills to improve yield and income	Sumatra, Indonesia
Nepstad et al. 2013	Bureaucracy and cost of license	Full licensing process could take up to 4 years and too costly	Brazil, Indonesia, Colombia
Nesadurai 2019	Regulation and support	Weak state regulation of smallholder farmers production practices and limited state support for smallholders upgrading	Indonesia and Malaysia
Nurfatriani et al. 2019	Lack of funds and capacity	Limited capacity to adopt good practices in managing their land and palm crops, and are inclined to use cheap methods of clearing land and to obtain uncertified seed and poor types of fertilizer	Central Kalimantan and West Kalimantan, Indonesia
Padfield et al. 2019	Sustaining livelihoods	Conversion of fallow lands to oil palm plantations triggers socio-ecological transformations that can affect the ability of smallholders to sustain their livelihoods	Global
Pramudya et al. 2022	Complicated requirements, limited capacity, limited funding	Land and business legality problems, lack of managerial capacity and organizational level, and lack of financing for certification	Indonesia
Purnomo et al. 2020	Low productivity and limited information	Low productivity, lack of information and knowledge among smallholders about suitable lands for plantations	Indonesia
Purnomo et al. 2021	Political-economic (structure, institution, and actor)	Access to financial resources and marketing information, connecting farmers to key actors in trade networks and enable their participation in the networks	Sumatra, Kalimantan, and Papua
Putri et al. 2022	Structural barriers	Hollow governance when regulations are absent or collide with each other	Jambi, Central

			Kalimantan, East Kalimantan, Indonesia
Schoneveld et al. 2019	Lack of linkages to industry and structural compliance gaps	Lack of direct industry ties and plantation management experience to develop the technical fundamentals to effectively and efficiently make use of the new opportunities brought about by ISPO compliance to access better inputs	Central and West Kalimantan
Watts et al. 2021	Structural disadvantages	Lack of access to historical planning, agricultural extension program, and smallholder plantation schemes; lack of involvement of government, non-government, and private sector actors	Central Kalimantan, Indonesia

Table 3 provides a comparative summary of the shared challenges and indicates four that were stated to be the most difficult (in bold): conflicting interest and objectives resulting in tensions; lack of technical capacity or knowledge (including among smallholders); land legality and tenurial conflict; and weakness or gaps in legal framework and law enforcement.

Table 3. Challenges identified for Indonesia and Malaysia (green highlights), key challenges for each country (check marks), and key challenges for both countries (bold text)

Challenge	Indonesia	Malaysia
Administration changes from local elections		
Budget constraint and lack of funds/financing for smallholders		
Conflicting interest and objectives resulting in tensions	**X**	**X**
Labor shortages		
Lack of commitment/political will		
Lack of direct linkages to industry for smallholders		
Lack of participation or diverse representation		
Lack of technical capacity or knowledge (including smallholders)	**X**	**X**
Lack of transparent system and/or clarity over control and oversight of sustainability policy implementation		**X**
Land legality and tenurial conflict	**X**	**X (Sabah & Sarawak)**
Limited extension services or technical assistance		
Limited synergy & lack of coordination		**X**
Plantations on degraded lands, low yields	**X**	
Weak monitoring, reporting & verification capacity	**X**	
Weakness or gaps in legal framework and law enforcement	**X**	**X**

3.1 Indonesia

Key challenges. During the FGDs, participants from government agencies and other stakeholders identified five key challenges in transitioning to sustainability, especially as related to the palm oil sector. The five key challenges and associated details are as follows:

A. Participants indicated that there is a general understanding about sustainability goals, but stakeholders have often *conflicting interests and objectives* on how (the means) to achieve the goals and the level of tolerance on how developing countries like Indonesia can make use of existing resources while maintaining forests and the environment (e.g., deforestation-free oil palm production). Others referred to a lack of agreement between the national and local governments on decisions related to land use and forest conversion for other uses (e.g., for palm oil plantations). Repeated changes in national policies were also identified as posing a challenge for district

stakeholders to follow during implementation, as were the delegated tasks of overseeing business operation within their jurisdiction.

B. *Weak monitoring, reporting and verification (MRV) capacity* was identified as a challenge. While most viewed existing laws and standards as sufficient to make palm oil production legal and sustainable, one participant pointed to the lack of supervision and MRV on the part of the authorities to ensure that companies adhere to prevailing laws and regulations. The importance of following up on results of evaluations was also highlighted. Limited capacity and number of personnel in charge of monitoring and assessing plantation business performance were also mentioned. For example, only two certified staff in charge of pre- Indonesian Sustainable Palm Oil (ISPO) assessment at the provincial plantation office in West Papua, one in each district-level plantation office in Sorong and Bintuni.

C. Repeatedly mentioned by participants as one of key challenges was *lack of technical capacity* across different actors. However, smallholders were particularly highlighted as they lack capacities to adopt good agricultural practices (e.g., proper use of high-quality seedlings, fertilizers), engage in effective farmers' institutions, manage their plantations, access financial sources, and legalize their lands. This challenge for smallholders was also identified by *Serikat Petani Kelapa Sawit* (Oil Palm Farmers Union, SPKS; Rahman and Kurniawan 2016) and Ministry of Agriculture (Hudoro 2022), indicating little knowledge about GAP and agricultural technology ranging from good seedling selection to fertilizer use and post-harvest handling of products. Knowledge transfer to smallholders on good practices in oil palm cultivation, as shown by Jelsma et al (2019), has been limited, with farmers receiving very little formal training, and with most knowledge coming from their input suppliers and other farmers. Hudoro (2022) highlights limited capacity of human resources (farmers) and institutions (farmer's collective action, and organization management skill) that challenge the development of palm oil smallholders and particularly the implementation of government's large-scale replanting program.

D. *Land legality issues associated with oil palm plantations overlapping state forestlands (kawasan hutan)* was a major key challenge identified by participants. Illegal oil palm plantations (2.6 to 3.4 million ha out of the 16.38 million ha of oil palm plantation; Kehati 2021; Dirjenbun 2021, DPKTL 2021) controlled by companies and smallholders (1.2 million ha or ~35-46%; Auriga 2018) in state forestlands was also identified in CIFOR-ICRAF (2022b) as a major challenge. Factors that cause plantations to occur on state forestlands include the repeated changes in land use and forest allocation policies, the lack of full designation/publication of state forestlands, and the failure of companies or hired contractors to properly adhere to the field guidelines when clearing the lands (Wibowo et al. 2019). Additional reasons for the illegal occupation, particularly by smallholders, are linked to economic (avoided costs related to procuring the land or obtaining the title can save up to 40% of initial investment; Susanti and Marhaento 2019) and social factors aggravated by weak governance of state forestlands (Wibowo et al. 2019). Further, most certification systems, often seen as pathways to sustainable production of palm oil, require growers to conform with national regulations and require evidence of land rights. For example, for ISPO, the required plantation registration (STDB) can be issued by local authorities only when land legality is clear (i.e., no conflicting claims), and for RSPO, demonstration of legal rights (title or permission) to use land in accordance with national and local laws is required. Though, the certification systems

seek to work along the lines of legality, due to the reasons described, these requirements function as barriers for many smallholders seeking certification[8].

E. *Ineffective governance* in the palm oil sector and other development sectors was identified as a key challenge. Some participants attributed this to administration level changes (e.g., repeated changes in staff within local government) that occurred often following the local elections, and to inconsistencies between policy and program planning and its implementation. Participants stated that while the oil palm sector is regarded to be fully regulated, the legal framework for sustainability implementation is still lacking, and weak law enforcement has hindered the effective achievement of sustainability goals. This has been aggravated by the lack of varied understanding among business actors regarding compliance with the prevailing regulations, and by lack of clear and measurable indicators for implementation progress in relation to actors' commitments.

Other challenges were also identified during the FGD (but not indicated as key challenges). These include the following:

A. *Lack of participation of key stakeholders in decision making processes and lack of diverse representation of actors in multistakeholder platforms*. Some relevant ongoing multi-stakeholder platforms at various levels such as FoKSBI (*Forum Kelapa Sawit Berkelanjutan Indonesia*) at the national level, Communication Forum for Sustainable Plantations (*Forum Komunikasi Perkebunan Berkelanjutan Provinsi Kalimantan Timur*) in East Kalimantan, Sedagho Siak in Siak district of Riau and Coordination Forum for Sustainable Palm Oil (*Forum Koordnasi Pembangunan Kelapa Sawit Berkelanjutan*) in Sintang district of West Kalimantan were mentioned as good examples for sharing information and forging collaboration and partnership. However, some FGD participants indicated concerns regarding these platforms such as, platforms were only established and effectively run in certain provinces or districts, a continuing issue of lack of appropriate and effective representation in the platform, and how the platform/group's actions and progress are followed up and monitored. Research has also documented how participation of actors has led multi-stakeholder platforms to be more effective in their objectives in Indonesia[9]. Relatedly, budget constraints were also identified as challenges.

B. Some participants mentioned the *implementation gap of sustainability commitments* in the palm oil or other development sectors. Often, high-level officials or leaders make commitments or sign on to national/international commitments but the path for how these will materialize on the ground is not clear/decided. One participant referred to a high-level forest protection commitment by leaders in West Papua for limiting the expansion of oil palm plantations and ensuring that indigenous people benefit from the revised sharing arrangement and there is a fair partnership between companies and local communities or smallholders. However, the implementation of this commitment has yet to materialize.

C. Despite many development actors (e.g., NGOs, private sector) taking part in providing support to palm oil producing provincial and district governments, there is a *lack of synergy and lack of coordination* across government agencies, and between

[8] A full discussion of barriers of ISPO, RSPO, and other certification systems in Indonesia and Malaysia have been thoroughly described and discussed in CIFOR-ICRAF 2022. Please refer specifically to Sections 5.2 and 5.2.1 for information as related to certification systems and smallholders.

[9] https://www.cifor.org/publications/pdf_files/flyer/7449-Flyer.pdf https://www.cifor.org/publications/pdf_files/flyer/7453-Flyer.pdf https://www.cifor.org/knowledge/publication/7996.

provincial and district government institutions. One example cited is an East Kalimantan case highlighting successful efforts by district plantation offices (from districts such as Berau, Kutai Kartanegara, Kutai Timur, etc.) and oil palm companies to set aside and verify HCVs within plantation concessions and develop plans for protecting and managing these areas. However, efforts to protect forested areas and HCVs located *outside* the concessions or within zones allocated for plantations as per the province's land use plans are challenged by lack of cross-sectoral institutional coordination.

Overall, participants echoed similar challenges facing smallholders as identified in Table 2. They include low productivity of the oil palm crop due to the use of poor-quality seedlings, lack of technical skills in adopting good agriculture practices, and lack of collectivization (i.e., desire to form smallholder groups and working together). These challenges for smallholders have also been identified by *Badan Pengelola Dana Perkebunan Kelapa Sawit* or BPDPKS (2021).

3.2 Malaysia

Key challenges. During the FGDs in Malaysia participants identified six key challenges in transitioning to sustainability. The six challenges and associated details are as follows.

A. *Transparency and perception* were identified as two key challenges that are difficult to address as they mutually reinforce each other. Lack of transparency on data and processes among government agencies (at both the state and the federal level) and the mainly external negative perceptions attached to the oil palm sector are hard to overcome. Some participants stated that the government has largely tried to address the 'perception war' through denial and this has led to a reluctance to release information, making the process less transparent and increasing negative impressions.
B. *Conflicting interests and objectives* were also identified as key challenges, especially the tension between state and federal levels of government was discussed by some participants. Malaysia's federal-state divide means that most land matters are under the jurisdiction of the states. Though palm oil issues would be under the states' jurisdiction since it is regarding land use, they have increasingly become a 'national issue' due to the global focus on the sustainability of the sector. Some participants stated that while a national policy on sustainable palm oil would help to streamline different state approaches, specific states like Sabah who have pioneered jurisdictional approaches are opposed to the idea as it would mean further 'loss of control' over the palm oil issue to the central government.
C. Relatedly, the *lack of implementation capacity and coordination* between different government agencies, especially at the state level, was also mentioned by participants. Government agencies have their own individual and sometimes conflicting performance indicators and objectives. Some participants added that often, new departments are created on an ad-hoc basis, seemingly with overlapping jurisdictions, reflecting political leadership interests, which can further complicate coordination.
D. The challenges associated with *land tenure and tenurial conflict* were also highlighted by many participants, especially those from Sarawak and Sabah. Some palm oil smallholders' families have lived in particular villages for generations but do not have the proper land title resulting in difficulties to get their plantations verified for Malaysian Sustainable Palm Oil (MSPO) and RSPO certifications. Participants from

or working in Sarawak mentioned that problems associated with land tenure seem to be worse there compared to other states. Participants also mentioned various initiatives that are underway to address this through expediting land titling for villagers and mapping exercises but that the lack of spatial data and transparency around the processes to resolve issues make it a very time-consuming process.

E. *Weaknesses in implementation and enforcement of the legal framework for sustainability,* were also identified as a key challenge. Participants mentioned that there are some good laws and regulations to address environmental problems in Malaysia, but that improvements are needed in terms of implementation, enforcement, and monitoring. Much of this relates to not having sufficient funds for the implementation and enforcement and greater investment is therefore needed.
F. Relatedly, there is also a limited budget from the government for conservation activities and incentives including *capacity building*. This includes the challenges of limited capacity and knowledge among smallholders on the adoption of sustainability practices and the lack of technical capacity among TUNAS Officers to monitor large numbers of smallholders and to execute plans. The lack of capacity of smallholders is a major challenge in convincing smallholders to shift to sustainability as most of the benefits from MSPO and other schemes are in the long term. However, smallholders often think for the short-term, related to immediate livelihood needs.

Other identified challenges in the transition to sustainability were also discussed by FGD participants. These include:

A. How MSPO is perceived and accepted in the global market, and how existing certification systems are aligned. Discussants acknowledged the challenges faced by Malaysia in getting MSPO recognized at the international level, especially compared to RSPO, which then translates to some pushback and disinterest at the subnational level, not only among smallholders but also among industry players and NGOs.
B. An associated challenge with the multiple certification systems is that the national (MSPO) and international (RSPO) certifications need to be aligned in regulations, especially with state ordinances, enactments, and policies. For example, Sabah will need to align these so that the jurisdictional level certification can be fully applied and make the process easier for Sabah authorities and local smallholders who are more familiar with local laws. Building on this, participants also related difficulties with having multiple certification systems (RSPO vs MSPO vs ISCC), especially for downstream entities, for example biodiesel processors and exporters, who may buy raw material from various producers.
C. Participants also mentioned the issue of corruption, especially related to some forms of interventions such as subsidies. In some cases, funds have been siphoned off at various levels of administration thereby not fully reaching the beneficiaries, especially for those interventions where support is provided in-kind.

4. Key interventions needed for sustainability

This section discusses the key interventions needed to lift jurisdictions/districts/states and especially independent smallholders in Indonesia and Malaysia to sustainability. The interventions were selected to address the key challenges identified in the previous sections and developed based on the discussions with the stakeholders during the FGDs.

There have been many commitments to sustainability made within and outside the palm oil sector by public institutions, the private sector, and development actors at various different levels (CIFOR-ICRAF 2022b). For example, they include Indonesia's moratorium policies restricting the expansion of oil palm on forests and peatlands, NDPE policies, and Malaysia's adoption of a comprehensive HCV assessment and cut-off date after which forest conversion is not permitted. Subnational governments across the two countries have adopted also green policies and action plans. Collaborations and partnerships have been realized through various multi-stakeholder platforms or forums across national, provincial and district jurisdictions. Despite these encouraging developments, some FGD participants still see the need to further foster commitment from the private sector and foster partnerships between companies and local communities and smallholders in both Indonesia and Malaysia.

The key interventions identified here are based on FGDs and interviews and are mostly existing initiatives/programs, but ones that need to be expanded or further supported. Thus, it is first crucial to understand where these interventions currently stand. Then the section shifts to a discussion on the CIFOR-ICRAF identified pathways for improvement for each key intervention which includes specific spaces for expansion or improvement, keeping smallholders and subnational jurisdictions specifically at the forefront.

4.1 Indonesia

To achieve sustainability goals such as forest protection and socio-economic well-being, FGD participants outlined elements that would support effective implementation of interventions: commitment, collaboration, integrity, responsibility, and common perception on the sustainability concept and practice.

Key interventions to promote palm oil sustainability and sustainable jurisdictions in general are designed, implemented, and supported by different stakeholders, both state and non-state actors. They are mostly structured through action plans for sustainable palm oil for 2019-2024, required by the Presidential Instruction No. 6/2019, addressing various major issues confronting the country's palm oil sector such as lack of a central database with data for decision making and institutional coordination, lack of capacity among smallholders, environmental degradation, weak tenurial rights, need to accelerate the adoption of ISPO certification by companies and smallholders, and increase ISPO acceptance by international stakeholders[10]. The Presidential Instruction aims for better coordination of implemented programs and activities relevant to palm oil sector, and targets central and subnational government institutions and other non-government institutions such as private sector companies, NGOs, research institutes, etc.

There are many interventions towards sustainability in the palm oil sector, proposed and already implemented by different actors, as described in the action plans and other

[10] http://foksbi.id/en/activities

documents. However, for further discussion, three interventions have been selected since they were mentioned multiple times by FGD stakeholders and identified as the most important for sustainability. They are:

1. Clarifying land legality and tenure rights issues over oil palm plantations overlapping state forestlands (*kawasan hutan*), particularly those concerned with smallholders.
2. Capacity building to enhance the capacity of smallholders to increase crop productivity, strengthen farmer institutions or groups (collective action), adopt GAP and comply with sustainability standards.
3. Low-carbon and green economy development at national and sub-national levels.

4.1.1 Clarifying land legality and tenure rights issues over oil palm plantations

Interventions to clarify land tenure and rights, if successful, would help overcome uncertainty about ownership of oil palm plantations for both companies and smallholders. For smallholders, this intervention would resolve conflicts about legal rights over the cultivation of oil palm in state lands and help with compliance for sustainability certification requirements[11]. Such interventions would also prevent losses of tax revenues since unauthorized plantations (particularly those without business permits[12]) cannot be taxed without being formally registered and issued with tax ID numbers.

Efforts are already underway to resolve contested company-controlled plantations through the current government policies[13] regarding procedures for imposing administrative sanctions and for managing non-tax state revenues deriving from the monetary sanctions. Specific clauses pertain to the granting of time (at the latest 3 years from the date of the Job Creation Law 11/2020 taking effect on 2 November 2020) to those managing plantations who have business permits but have yet to obtain forest conversion permits to clarify their legal status. If they fail to meet the requirements, they are subject to either administrative fines or revocation of business permits (110A of Law 11/2020). Companies whose plantations overlap state forestlands and who have no business permit issued by the central government must stop operations temporarily, pay administrative fines and/or restore the forests damaged as a result of their operations (110B).

For smallholders this resolution can be through two pathways, granting (a) ownership through agrarian reform (TORA) or (b) management rights over lands through social forestry. These two solutions are not possible on all lands or for all smallholders and both involve a lengthy process as there are procedures for determining suitable lands for distribution, and the eligibility of subjects or recipients. The Ministry of Environment and Forestry (KLHK) mainly decides and allocates forest areas to be made available under both resolution mechanisms in periodically issued land maps[14]. The Ministry of Agrarian Affairs and Spatial Planning/Land National Agency (Badan Pertanahan Nasional, ATR/BPN) issues certificates

[11] The lack of tenurial rights over plantations creates barriers for smallholders having no evidence of rights and ownership (e.g., STDB) to comply with ISPO and other certification schemes.
[12] Business permits refers to three types of the *Izin Usaha Pertambangan* or IUP: (a) IUP plantation business unit that integrate plantation and processing business, (b) IUP-B (Budidaya, cultivation or plantation only), or (c) IUP-P (Pengolahan, processing only) permits
[13] Policies such as the Job Creation Law No. 11/2020, Government Regulation No 23/2021 regarding forestry, and Government Regulation No. 24/2021
[14] The Ministry of Environment and Forestry periodically updates and issues indicative maps (https://geoportal.menlhk.go.id/webgis/index.php/en/) showing the allocation of forest areas for agrarian reform (Alokasi Kawasan Hutan untuk Penyediaan Sumber TORA) and for social forestry (Peta Indikatif dan Areal Perhutanan Sosial, PIAPS)

for communities, farmers, and others under the TORA program[15]. Within their jurisdictions, governors and district heads set up inventory and verification teams (*Tim Inventarisasi dan Verifikasi*) and taskforces for agrarian reform and establish social forestry working groups (*Kelompok Kerja Percepatan Perhutanan Sosial*)[16] to help accelerate the implementation and the achievement of the goals of the two solutions.

A. Agrarian reform (TORA)

Based on Presidential Regulation No. 88/2017 regarding resolution of unauthorized claims over lands in state forest lands and Presidential Regulation No. 86/2018 regarding agrarian reform, the government expects to redistribute land and ownership rights to targeted beneficiaries including landless peasants, farmers, farm laborers, community groups, and cooperatives. Resolving disputed oil palm plantations through agrarian reform, specifically targeted at smallholders, is politically, administratively, and legally feasible as it is already codified by existing regulations and there is a push from the current Jokowi administration for the associated ministries to resolve this issue.[17]

Since TORA was launched in 2017[18], relevant ministries have issued operational regulations[19] to provide the basis for the reform and to guide technical implementation and establishe targets[20]. Lands subject to agrarian reform through redistribution are those originating from the 'convertible production forest' lands, non-productive and non-forested state forest lands, abandoned and absentee lands/concessions, and those associated with the company's obligation to set aside 20% of their concession rights for community plantations. In 2019, President Jokowi started granting a decree (*SK Biru*) to local communities confirming their ownership of lands originating from state forestlands through agrarian reform.[21]

However, progress in implementing this intervention is still slow. BPN (2021) reported that as of mid-2021, only 27.6% of the total lands under redistribution program have been completed. It is hindered by (1) the delay in or lack of fulfilment of companies' obligations to facilitate the establishment of community farms covering an area of 20% of their

[15] BPN issues certificates under agrarian reform to various groups including smallholders, farmers, fisheries, laborers, informal traders, low-level government officials, etc.
[16] Article 18 of President Regulation No. 88/2017 regarding the resolution of control land over state forestlands, and Article 9 of Environment and Forestry Minister's Regulation No. 9/2021 regarding social forestry management.
[17] A series of meetings and dialogues between President Jokowi, his ministries, and Civil Society Organizations were held on 23 November and 3 December 2020, in addition to the President handing land certificates to communities (Setiawan 2021). These all signaled the intention to accelerate the resolution of land conflicts through agrarian reform.
[18] Through Presidential Regulation No. 88/2017 regarding resolution of illegal claims on lands overlapping state forestlands.
[19] Minister of Environment and Forestry's Regulation No. P.17/2018 regarding the conversion of state forestland into lands for agrarian reform programs.
[20] To support this endeavor, KLHK has set a target of converting up to 2.53 million ha state forestlands from 2020 to 2024 and distributing the lands to eligible local communities and farmers including disputed oil palm smallholders through agrarian reform programs. This target is supported by budgets allocated for program implementation (DPKTL 2020). Another key ministry, BPN has also included key performance indicators related to the successful implementation of agrarian reform (e.g., increased land distributed, increased number of recipients or household) in its strategic plans for 2020-2024 (BPN 2020).
[21] Ministry of Environment and Forestry's press release (September 2019, https://ppid.menlhk.go.id/siaran_pers/browse/2090)

concessions[22]; (2) proposed lands for redistribution are mapped but not yet located in the field; (3) unclear mechanisms for transferring land between companies and the targeted beneficiaries; and (4) need for further coordination between local governments and various ministries due to the complexity around releasing lands designated as convertible production forests. While no detailed statistics are available on the extent of disputed lands or oil palm plantations that have been resolved through this redistribution program, the National Secretariat for Agrarian Reform Taskforce (GTRA 2021) reported progress on distribution of lands and certificates to palm oil smallholders in the provinces of North Sumatra, Riau, Kepulauan Bangka Belitung, Lampung, West Kalimantan, and West Papua. The granting of ownership rights was claimed to have helped smallholders access finance for oil palm replanting and bank credit.

Learning from the early-stage implementation of TORA, the Agrarian Reform Consortium (*Konsorsium Pembaruan Agraria*, KPA) proposed a bottom-up model – an alternative to the often top-down decisions adopted by government – for determining priority locations or *Lokasi Prioritas Reforma Agraria*, proposed by concerned communities. This model would ensure the suitability of the targeted land and communities, and achievement of the agrarian reform's desired goals.[23] The proposal was endorsed by the President and is now being implemented by BPN to speed up the progress (GTRA 2021).

B. Social forestry

Unclear tenure rights of smallholders over plantations is also being resolved through the adoption of social forestry - a long-standing program in the forestry sector to provide local communities living around state forestlands with the rights to manage and benefit from the nearby forests for 35 years. KLHK's Regulation No. 9/2021[24] expands the role of the social forestry program by introducing *Jangka Benah* (a transition period[25]) strategy to resolve disputed smallholder oil palm plantations within state forests and grant farmers legal rights to access and manage their oil palm plantations, and benefit from the harvest of FFB. Under *Jangka Benah* and social forestry, in general, management and not ownership rights are granted to individual farmers, farmer groups, or cooperatives. Susanti and Marhaento (2019) argued that through the *Jangka Benah*, forest ecosystems disturbed by monoculture cultivation of oil palm can be restored and brought back to a structure that resembles natural forests. Based on the KLHK's policy, oil palm farmers are allowed to harvest FFB until the crops need to be replanted, or 25 years from when palm oil trees were planted if plantations are in production forest zones. If the plantations are in protection or conservation zones, farmers are allowed to harvest for 15 years from planting. During the *Jangka Benah* period, farmers are not allowed to replant oil palm crops and must replace palm trees that are 15 or 25 years old (in production and conservation zones respectively) with forest trees.

While this strategy is still relatively new, it shows the settlement of disputed plantations is politically, administratively, and legally feasible as there are policies and regulatory frameworks in place. There have also been successful efforts to make lands available for social forestry and to grant community rights to access forest resources across regions in

[22] Based on Article 12 of Government Regulation No. 26/2021 regarding agriculture sector, companies are obliged to facilitate the establishment of community farms within 3 years from the date when business use right (HGU) over the lands are granted.
[23] Data-Usulan-LPRA.pdf (mongabay.co.id)
[24] Issued in response to the Job Creation Law No. 11/2020 and Government Regulation No. 23/2021 on forestry.
[25] A period during which forest structure and ecosystem functions are restored, and when oil palm plantations are gradually transformed into agroforestry plots by planting forest tree species

the country. KLHK (2020) reported that between 2007 and 2014, the ministry issued social forestry land rights for only 455 thousand hectares but between 2015 and 2019 KLHK prioritized the social forestry program[26] and granted communities with the rights for 3.59 million hectares (Note: social forestry hectarage is not limited to oil palm plantations on state lands). Lessons from the long-standing social forestry program are applicable to the *Jangka Benah* strategy in dealing with disputed palm oil plantations. They include how legal rights of access to resources are granted and how community and farmer groups can increase their capacity to strengthen their institutions, establish partnerships, manage forests and tree resources, and develop business plans.

It remains to be seen if the strategy would financially benefit farmers, at least in the initial phases. The adoption of *Jangka Benah* is also hampered by limited budget, as regular budgets and funding support from governments and non-government actors have been allocated for the implementation of social forestry schemes, but not *Jangka Benah* specifically. For example, in the province of Central Kalimantan, resolving 300,000 ha of disputed smallholder plantation through the adoption of this strategy would require an estimated IDR 379 billion per year (Susanti and Marhaento 2019) and the source for these funds is still to be determined.

Potential pathways for improvement

Smallholders' ownership and management rights over their plantations are being clarified and resolved through TORA and *Jangka Benah* strategies[27]. There has also been a push for accelerating resolution through the establishment of teams, taskforces and working groups. However, there are some critical points and considerations worth noting to further improve the implementation of the strategies.

- Despite the existing teams and taskforces in place to accelerate the agrarian reform, there is need to further improve coordination among related institutions, national ministries, and sub-national government agencies, and to look for innovative ways for resolving disputed lands. Though GTRA is a cross-sectoral taskforce intended to tackle all agrarian reform issues promptly, Hamdani and Ichsan (2021) and Oktaviana and Naharoh (2021) still viewed the taskforce as weak in dealing with "ego sectoral" issues and noted the inability of its members to articulate their role and consolidate work under the agrarian reform working framework. These issues hinder the effective implementation of the taskforce's work. Lack of civil society representation in the taskforce, given GTRA is dominated by government institutions, also results in decisions being based only on data available from government offices, which often need further verification.
- Regarding land conflicts with companies, local communities are often in a weak position in terms of rights and negotiation power (Dhiaulhaq et al. 2018) and have difficulties

[26] KLHK prioritized the social forestry program and issued operational policies in support of a wider legal access for communities living around the forests through village forests, community forestry, people plantation forests and indigenous forest rights. The Ministry also streamlined the process through which communities are granted the rights and promoted forestry partnership through which nearby communities establish cooperation with forest concession owners. The Ministry improved its social forestry policy to enhance the welfare of communities on Java by granting greater access to forests managed by the state-owned corporation.

[27] Note that these (ownership via TORA and management via *Jangka Benah*) do not have to be granted to only individual farmers but can be granted to communities (local or indigenous) and other groups (e.g., cooperatives, villages) in specific areas such as state forestland, plantations etc. This is based on the regulations issued by the National Land Agency (No 10/2016) and by the Minister of Environment and Forestry (No. 9/2021).

demonstrating official evidence regarding claimed lands. Yet, decision makers within government institutions/agencies may base their decisions solely on available official evidence (Hamdani and Ichsan 2021) and companies have yet to adequately and consistently adopted FPIC principles and standard operating procedures, despite their strong policy commitment to protect and respect local community and indigenous' rights (RAN 2020). To shift this power imbalance, it is important to adopt innovative and flexible ways of resolving disputed lands through approaches such as effective mediation (Dhiaulhaq et al. 2018), increased stakeholder participation (e.g., mapping, active participation in the taskforce), following up on any proposed locations through bottom-up mechanisms, making funds available from government and other budgets, and setting more flexible criteria for determining "clear and clean" status of the proposed lands (Rumboko et al 2019, Oktaviana and Naharoh 2021, Hamdani and Ichsan 2021). Further, obligating companies to provide details on how FPIC is adopted as per standard operating procedure and independent evaluation and verification of progress claims on plantation developments and community relations can also help address the power imbalance (RAN 2020).

- Related to the previous points, it is important to forge public-private partnerships to help align the efforts by the private sector with government policies and initiatives. In relation to the TORA, they are relevant to potentially address the slow progress of companies on identifying lands for the establishment of community plantations[28] as part of their legal obligation or to establish partnerships with nearby communities. This is because one source of lands for TORA is from areas companies are obliged to set aside when seeking business use rights and forest conversion permits. The partnerships can enable local government and village level involvement to identify disputed lands and potential farmers, speeding up the TORA progress. This could be enhanced by linking to ISPO requirements and ISPO audits to enforce and expedite the private sector's role in providing available lands and clarifying rights for nearby oil palm smallholders.
- The capacity of subnational government agencies at the provincial and district levels needs to be strengthened, especially in understanding the legal framework and in the development of technical skills such as land surveying, GIS mapping, ground truthing, and tools for decision making on land allocation. Government staff capacity is also needed for the development of an effective monitoring system to track the resolution of land conflicts and determine remaining gaps and necessary steps to be taken by key institutions. There is also a similar need for capacity building of local NGOs to effectively conduct independent monitoring and other activities.
- Resolving the disputed oil palm plantations through the *Jangka Benah* strategy is a temporary means to grant oil palm farmers a legal right to manage existing plantations and to establish "forest farmer groups[29]" while restoring forests and ecosystems. However, this strategy may *not* be a long-term solution for maintaining the key role of many smallholders in the Indonesia palm oil supply chain, as their production of FFB will fall as they transition to cultivation of forest commodities. It is also *not* a pathway towards the production of sustainable palm oil by smallholders under ISPO sustainability standards by 2025 (as required to access palm oil markets under the ISPO regulation). There are no clear provisions in the current ISPO regulation for oil palm production under social forestry rights, however, it would be theoretically possible for these smallholders to

[28] Article 14 of Agriculture Minister's Regulation No. 18/2021 regarding facilitating the establishment of community plantations.

[29] Though there is no specific definition for this from the latest social forestry regulation, the term Kelompok Tani Hutan or forest farmer groups have long been used to refer to the recipients of social forestry rights granted by KLHK. In this context, oil palm smallholders are gradually transitioned to be forest farmers as they change from being cultivators/harvesters of oil palm to of NTFPs.

obtain ISPO certification to give them access to palm oil markets during the transition period. The farmers' legal rights to manage the plantations (i.e., community forest permits) should enable them to have FFB harvested from these plantations during the *Jangka Benah* period be certified under ISPO or even RSPO. For the strategy to function as an incentive for smallholders, this aspect would need to be clarified in the ISPO regulation and criteria.

- While the *Jangka Benah* will not sustain smallholder production of palm oil in the long run, the strategy is a path for dealing with disputed plantations of low productivity where forest ecosystems can potentially be restored, and smallholders are not highly dependent on oil palm and have weak market linkages – thus having a low opportunity cost of transitioning out of palm oil sector. Based on these considerations there is a need to assess if the *Jangka Benah* strategy is technically and economically feasible for specific locations and smallholders, and for ensuring that relevant authorities and farmers make informed decisions regarding their engagement. FFBs remain an important source of income for many farmers in palm oil producing regions (Lee 2014, Vermeulen and Goad 2006, Jelsma et al 2017 and Schoneveld et al, 2019) and it is critical that opportunity costs are considered during the transition period and after 15-25 years of *Jangka Benah.* Once farmers acknowledge that they cannot be oil palm growers in the long term and agree to this strategy, they can start integrating forest trees into their oil palm crops through agroforestry as described in the policy and can also learn about forming forest farmer groups, managing forest trees and non-timber forest products, and environmental services. Based on demonstration plots in Jambi and Central Kalimantan, Susanti and Marhaento (2019) found varied responses and concerns regarding the *Jangka Benah* strategy and phased adoption of agroforestry. Farmers' willingness to engage in the strategy, particularly adopting agroforestry model for their palm crops, is hampered by perceived assumptions that managing agroforestry is more complex than the monoculture and that introducing other tree or crop species into their palm plantations would lead to decreased productivity and decreased economic return from FFB sale (Susanti and Marhaento 2019). However, mixed oil palm cultivation systems could offer economic and environmental improvements and more efficient use of land (Khasanah et al. 2020). Thus, communicating the incentives and benefits of making the transition is as important as ensuring that smallholders have the capacity and knowledge to do so. Establishing clear income sources and livelihoods for smallholders after the transition is likely to greatly influence the success of this program.

In summary, successful implementation of these strategies will depend on how smallholder or community groups are able make informed decisions on the management models under the proposed schemes, their willingness to develop and implement the management plan, and on effective institutional and technical capacity building (e.g., on NTFP development and/or payment for environment services). The two strategies for resolving land tenure conflicts are also important for lifting jurisdictions to sustainability. If smallholders continue to cultivate oil palm in lands considered illegal or without land titles, they will not only be unable to obtain certification but any attempts for jurisdiction-wide certification will also be jeopardized and will result in the categorization of associated jurisdictions as high risk for deforestation. Thus, clarifying land tenure (and inclusive land use planning) is crucial for smallholders and jurisdictions in the path to sustainability.

4.1.2 Capacity building to enhance the capacity of smallholders

There have been a lot of capacity building efforts implemented by governments and development actors to enhance the capacity of smallholders to increase crop productivity,

strengthen farmer institutions or groups (collective action), adopt GAP, and comply with sustainability standards. They include:

A. Peremajaan Sawit Rakyat (PSR) or smallholder replanting programs that strengthen the capacity of smallholders to organize themselves into farmer groups, to adopt GAP by not using fire for land preparation, and by using certified seedlings and proper fertilizers. To complement the capacity building activities, through PSR farmers are facilitated to increase crop productivity by replacing old crops (i.e., 25 years old) or low-productivity (less than 10 tons of FFB per hectare/year) plantations. Across Indonesia, plantations potentially subject to replanting is estimated to cover an area of 2.78 million ha with an approximate annual planting target of 185,000 ha. The programs have been supported financially by funds managed by BPDPKS. Between 2016 and 2021, IDR 6.59 trillion has been spent on smallholder replanting program for 105,684 farmers across the country covering an area of 242,537 ha (BPDPKS 2021). However, disbursement and area covered in the past five years reached only about 26% of the target.
B. BPDPKS's 2020 progress report (BPDPKS 2020) indicates challenges to program implementation, which include lengthy procedures for fund disbursement, burdensome requirements for disbursement for eligible farmers, ineffective role of assistant officers and unclear agreement on funding disbursement between the bank, mills and farmer groups. In addition, farmers are confronted by difficulties meeting the requirements (e.g., mapping, costly land certificate) and unclear tenure rights as some of their plantations overlap with state forestlands and are considered illegal. When the program was started in 2015, each eligible farmer was granted Rp 25 million/ha to cover replanting cost and had to seek additional funds to meet technical replanting requirements set by the Ministry of Agriculture. In 2020, through its regulation No. 167/2020, the Director of BPDPKS increased the grant to Rp. 30 million/ha. While replanting programs are instrumental in increasing crop yield, some considered them not yet feasible for farmers with low capital (Nurfatriani et al. 2019; Fauzia et al. 2021) due to the gap in between the grant and the actual cost for replanting as per the Ministry's technical requirements. However, despite the increase in grant allocation to each farmer, estimates for replanting are IDR 63-67 million/ha (Berita Sawit 2016), and farmers will have to cover the difference through personal savings, low-interest bank loans or *Kredit Usaha Rakyat* for farmers, etc. More recently there has been an indication[30] of BPDPKS's willingness to increase the grant from Rp 30 to Rp 60 million/ha. However, the agency has acknowledged that it must first seek approval of the Steering Committee, comprising of ministries including the Coordinating Ministry for Economic Affairs and the Ministry of Agriculture.
C. Support to incentivize smallholders to pursue ISPO certification is stipulated in Government Regulation No. 44/2020 and Agriculture Minister's Regulation No. 38/2020. Smallholders can secure funding support from national and local budgets and other valid sources to cover certification costs, including training, facilitation (*pendampingan*) to help comply with ISPO principles and criteria, and initial ISPO certification costs. Financial support from BPDPKS is available for smallholders clarifying the legality of their plantation (through STDB) and verifying the technical requirements or audit for ISPO certification. This was made possible through the Minister of Agriculture Regulation No. 07/2019 and Decree of Directorate General of

[30] BPDPKS follows up smallholder replating grant to Rp 60 million per hectare (13 August 2022). https://www.bpdp.or.id/bpdpks-pastikan-tindak-lanjut-usulan-dana-replanting-petani-sawit-naik-jadi-rp-60-jutaha

Plantations No. 273/2020 regarding human resources development, research and development, means and infrastructure for palm oil plantation development. Smallholder plantation certification would help trace palm oil to smallholder plantations.[31] Further, with support from development partners and the private sector, district governments such as Sintang, Kotawaringin Barat, and Kutai Kartanegara, have developed initiatives to enhance the capacity of smallholders regarding sustainability standards, increase their skills in good agriculture practices, and prepare for RSPO and ISPO certification through facilitation or *pendampingan* activities.

D. Related to the issues of land tenure clarity and capacity building, there are ongoing efforts on inventory and mapping of smallholder plantations through the STDB process. STDB is a letter of confirmation issued by the district head (as mandated by regulations issued by the Minister of Agriculture.[32]) and granted to smallholders attesting to plantation ownership, location, land status, size (<25 hectares), crop, production per hectare, and other relevant information. STDB can provide authorities with information relevant in formulating policies (e.g., investment, smallholder empowerment), and enable the tracing of FFB and palm oil products. Despite this usefulness and collaboration with other parties, progress on issuing STDB remains lacking and out of a total of 4.54 million ha of smallholder plantations as of May 2021 (Ditjenbun 2020) only 23,000 STDB covering 40,800 ha have been issued (Media Perkebunan 2021). As previously discussed, STDB cannot be issued if for plantations located within state forestlands and clarifying tenurial rights is thus critical, particularly for smallholders. With the STDB, smallholders will be able to meet certification requirements and obtain financial assistance from state/regional budget and other sources of funds. Further, access to replanting support and capacity building programs can be utilized as an incentive to motivate smallholders to obtain their STDB. Therefore, it is important that smallholders' capacity be enhanced to understand legal frameworks for plantations, to collect pertinent information on their plots and use necessary tools (e.g., GPS, mapping) to track and locate their plantations, etc. STDB will enable authorities to make informed decisions, provide targeted interventions and enable them to trace FFB and palm oil products.

Apart from the above-mentioned and ongoing initiatives, specific interventions considered important and needed by stakeholders include capacity building activities to enhance the ability of smallholders to (a) mitigate and adapt to risks arising from production of a single commodity and high price volatility of palm oil, and (b) manage plantations and crop production in a professional manner, and gain access to finance and low-interest loans.

Potential pathways for improvement

There are a few important points and consideration to improve on current smallholder capacity building initiatives.

- Capacity building support needs to be beyond one-time training or help. Providing continuous facilitation (*pendampingan*) – capacity building support that is long-term and helps the smallholder obtain day-to-day assistance – is critical to assisting smallholders

[31] Article 60 of the Agriculture Minister's Regulation No. 7/2019.
[32] Law 39/2014 regarding plantations, Presidential Instruction No. 6/2019 regarding action plans, Agriculture Minister's Regulation No. 98/2013 regarding guidelines for plantation business license and No. 45/2019 regarding an integrated service system for electronic licenses in agriculture sector, Director General of Plantations' Decree No. 105/2018 and 283/2018 regarding STDB Issuance Guidelines

in catalysing collective actions, strengthening their institutions (e.g., farmer groups, cooperatives). and in getting acquainted with and complying with sustainability information and standards (e.g., ISPO). In addition to the length of the capacity building, it is also important to consider the use of appropriate language when implementing so that smallholders can fully grasp the standards and requirements.

- Capacity building initiatives also need to focus on aspects of FFB trading. This would help address challenges smallholders are facing in FFB trading (e.g., concerning low quality FFB, unfair partnerships between smallholders and companies or mills, price setting, middleman). Through long-term training and support and with government monitoring and supervision of FFB trading practices, smallholder capacity and the situation regarding FFB can be changed. The local regulation No. 10/2021[33] regarding smallholder FFB training issued by the district of Kotawaringin Barat in Central Kalimantan, serves as one example that provides opportunities for developing fair, transparent and competitive schemes for FFB trading that benefit smallholders, middlemen, traders and processing industries. Governments can also act as a mediator in this process between the smallholders and companies/mills.
- Building capacity through promotion of farmer schools or learning forums and adopting a train-the-trainer approach can scale up support for smallholders. This type of approach is practiced by Fortasbi (*Forum Petani Kelapa Sawit Berkelanjutan Indonesia*) and RSPO Smallholder Trainer Academy and has shown success in helping smallholders obtain certification and transition to sustainable practices. The smallholders working with Fortasbi and the RSPO Academy have shown an increase in their capacity to adopt sustainability practices, get their plantations certified, and deal with potential partners including mills and traders. A wider adoption and implementation of this approach could ensure the continuity of sustainability practices and improved wellbeing.
- Additionally, capacity building support and incentives should be provided to not only smallholders pursuing certification, but also to those already certified to maintain the motivation to keep up with certification requirements and sustainability practices.
- Providing programs and initiatives to build capacity will require tapping into new funding sources and expanding the uses of other sources (e.g., BPDPKS). Governments largely fund such programs through the use of the national or local budgets, but these funds tend to be limited resulting in support limited in duration and geographical reach, thus limiting its effectiveness. However, through pairing or jointly working with programs run by NGOs and companies, support can be expanded to help more smallholders, and NGOs often have networks to access even difficult locations. Similarly, company corporate social responsibility programs can not only help the company fulfill its legal obligations but through alignment of these funds with government programs, locations requiring support can be better reached.

4.3.1 Low-carbon and green economy development at national and sub-national levels

Many initiatives aimed to lift districts and provinces to sustainability are linked to the national targets, commitments and policies regarding climate change mitigation and adaptation, GHG emissions reduction (i.e., nationally determined contribution, NDC), and the Sustainable Development Goals, etc. Across Indonesia, there are different levels of effort and progress among jurisdictions regarding engagement in sustainability declarations and policy

[33] Peraturan Daerah Kabupaten Kotawaringin Barat No. 10/2021 regarding Kotawaringin Barat Smallholder Fruit Fresh Bunches Trading

development, and in creating policies and programs to reduce deforestation and achieve socio-economic, and environmental outcomes. Some provinces such as Central, East, and North Kalimantan, and West Papua are relatively advanced due to participation in global platforms and declarations, such as the Governor's Climate & Forests (GCF) Task Force, the implementation of which is fostered by national frameworks (Stickler et al. 2018). These provinces and some districts in these and other provinces have benefited from development support and multi-stakeholder forums (LTKL 2020, CIFOR 2022b). As part of Indonesia's FOLU Net Sink 2030, plans to mitigate climate change and reduce GHG emissions from forestry and land use sector have also been published and promoted, with great implications for subnational governments (KLHK 2022).

In the palm oil sector, the national mandate[34] requiring preparation of action plans for sustainable palm oil has spurred subnational governments to develop provincial and district action plans and to establish multistakeholder forums to support the implementation of the plans. Progress has, however, been slow and varied across jurisdictions. As of May 2022[35], only eight (8) of 26 palm oil producing provinces and twelve (12) of 225 palm oil producing districts[36] had either finalized or were developing action plans. The slow progress results from lack of attention among local leaders to plan implementation, lack of coordination, reallocation of budgets due to the COVID-19 pandemic, and lack of local budget (APBD) (Junaedi 2021). The Ministry of Home Affairs' guidelines for the preparation of action plans is the main reference for all provincial and district governments. However, the guidance was only issued in September 2021, almost two years after the Presidential Instruction, and many have attributed the slow progress to this. Some provincial and district governments are now harmonizing already prepared plans to align with the guidance.

Other examples of provinces[37] and districts[38] with jurisdictional plans exist. However, it remains to be seen how effective and efficient these have been in lifting district/jurisdictions to sustainability, reaching the stated sustainability goals, and tackling challenges facing oil palm smallholders. Some provincial and district governments have realized sustainability pledges and commitments by developing legally binding local regulations, policies, and

[34] As stipulated through the Presidential Instruction No. 6/2019 regarding national action plans for sustainable oil palm plantations for 2019-2024.
[35] Focus Group Discussion organized by FOSKBI, 31 May 2022 on the evaluation of sustainable palm oil action plans as per Presidential Instruction No. 6/2019
[36] South Sumatra, Central Kalimantan, Jambi, West Sulawesi, and West Kalimantan provinces have developed action plans that have been legalized through their respective local regulations. Riau, South Kalimantan, and East Kalimantan provinces were in the process of developing the plans during the time of this study's data collection. Sintang, Tapanuli Selatan, Pelalawan, Kotawaringin Timur, Tanjung Jabung Timur have developed the plans while Tebo, Sekadau, Kotawaringin Barat, Paser, Aceh Tamiang, Langkat and Bulungan were in the process of developing the plans.
[37] West Papua: a special local policy on sustainability (*Perdasus*) and has been preparing a low carbon development plan integrated within its mid-term development plan (RPJMD) as part of its memorandum understanding with Bappenas (Pulungan et al. 2020). South Sumatra: program to develop circular economy and green-based industries with a focus on Musi Banyuasin and Banyuasin districts. East Kalimantan: a local policy in place to support sustainable plantations and engage in result-based payment programs for emissions reduction through the World Bank's Forest Carbon Partnership Facility.
[38] Pulang Pisau, Central Kalimantan: a strategy for green growth and engaged in a joint effort to develop action plans for sustainable agricultural land for food (*lahan pertanian pangan berkelanjutan*) with palm oil as one of the key commodities. Sintang, West Kalimantan: regional action plans for Sintang Lestari (Kabupaten Sintang 2019) and a master plan for sustainable plantations. Kotawaringin Barat, Central Kalimantan: a decree confirming the district's commitment to jurisdictional palm oil sustainability certification and established a working group to promote sustainable palm oil sourcing from this district. Siak, Riau and Sanggau, West Kalimantan: engaged in development of district level ecological fiscal transfer (LTKL 2022).

programs in different areas such as sustainable land use and green growth and by establishing multi-stakeholder forums (LTKL 2020, Komalasari et al. 2018a, Komalasari et al. 2018b, Komalasari et al. 2018c, Peteru et al. 2019, Sukri et al. 2020). For example, in East Kalimantan, the province's participation in GCF taskforce has strengthened sustainability commitments as indicated by the issuance of local policies on sustainable plantation development[39] and a Governor's decree for the establishment of a multistakeholder communication forum for sustainable plantations.[40] The provincial government has also issued regulations on high conservation value areas.[41] Elsewhere, LTKL member districts, such as Siak, Sintang, and Musi Banyuasin, have successfully integrated sustainable natural resources governance into mid-term development plans, engaged in regional competitiveness to fulfill sustainable performance indicators, and developed incentive policies in support of sustainable development targets. Efforts are also underway to connect local producers to buyers and to encourage supply chain sustainability (LTKL 2022).

The implementation of low carbon development in the forestry and land use sector was recognized by Bappenas (2020) to have contributed to a decreased deforestation rate and potential reductions in GHG emissions. Despite efforts to prevent further deforestation and restore damaged peat lands, however, primary forests have declined in certain areas and peatlands ecosystems continue to be threatened. Bappenas (2020) indicated that decreased regional performance in reducing GHG emission from forestry and land use has been due to changes in decentralization in the forestry sector, lack of competent personnel, and reduced budget for mitigation. It calls for low-carbon development to be prioritized by mainstreaming relevant interventions and actions into mid-term development plans, thus securing budgets for implementation.

As part of low-carbon development efforts, local governments are responsible for preventing the conversion of forests, particularly those located outside state forestlands and forest and plantation concessions. KLHK (2022) has mapped out 3.7 million ha of natural forests across all provinces, which are subject to planned and unplanned deforestation. Having relevant authority and decision-making power, local governments play a significant role in preventing deforestation and contributing to reduced emissions as part the country's FOLU Net Sink 2030 targets.

Potential pathways for improvement

To further strengthen enabling conditions for lifting jurisdictions towards sustainability, there is a need to enhance coordination and collaboration across all levels of government and between government actors and other key stakeholders including development partners and the private sector through two related paths.

- New or existing multi-stakeholder forums relevant to palm oil, land use and forest management need to be established or reactivated at the national, provincial, and district levels. For these forums to be successful, it is critical to have representative and effective participation of all stakeholder groups. Subnational governments have

[39] Peraturan Daerah Provinsi Kalimantan Timur No. 7 Tahun 2018 regarding Sustainable Plantation Development.
[40] Peraturan Gubernur Kalimantan Timur No. 52 Tahun 2018 regarding establishment of sustainable plantation communication forum
[41] Peraturan Gubernur Kalimantan Timur No. 43 Tahun 2021 regarding management of high conservation value areas within plantaion concessions and Peraturan Gubernur Kalimantan Timur No. 12 Tahun 2021 regarding criteria for HCV areas

increasingly recognized the role of stakeholders such as indigenous peoples and local communities in realizing commitments to halt deforestation, thus their full participation in decision-making is crucial. For example, in Central Kalimantan and West Papua, indigenous peoples have gained more prominence in decision making and political recognition. The forums can also act as a platform for learning, through which best practices, information, and resources about sustainability are shared among members. Further, such multi-stakeholder forums can function to hold the government and other actors accountable, especially as political administrations, political will, and leadership change. Forums can be a way to maintain continuity and align the interests of various groups.

- Public-private partnerships can enable the alignment of sustainability efforts specifically between companies and local governments as well as fund some efforts within a jurisdiction. Similar to multi-stakeholder forums, partnerships can also act as a way to keep government accountable in passing and implementing regulations, despite changes in administrations or shifting political will. There are some examples of such contracted partnerships between provinces and companies (e.g., Central, East, and West Kalimantan) to solve tropical deforestation. However, the number is small likely due to the high risk of reputational attacks from advocacy NGOs for companies desiring to use jurisdictional sourcing strategies and a difference in scale of operation for zero deforestation efforts (government - entire jurisdiction, companies – their supply chain; Stickler et al. 2018).

Positive lessons can be drawn from jurisdictions establishing multi-stakeholder forums and public-private partnerships addressing sustainability. East Kalimantan's communication forum for sustainable plantations established through a Governor's decree, for example, has led successfully to the issuance of operational guidelines for identification of high conservation value (HCV) areas. The private sector's active participation in the forum led to many palm oil companies taking actions across various districts in the province to identify HCVs and prepare plans for HCV management. Another example is FOSKBI, which has enabled provinces and districts that have developed action plans for sustainable palm oil as mandated under the Presidential Instruction No. 6/2019, such as Riau province and Sintang district, to share experience and knowledge with other jurisdictions who have yet to develop or are in the process of developing their plans.

Further, existing forums and platforms can be developed further to support more districts. *Lingkar Temu Kabupaten Lestari* (LTKL) as a forum brings together districts committed to sustainability to learn from each other's experience, but its current membership is limited to 11 districts, however given the successful approach of this forum, it could be expanded to more districts to scale up the impacts across more Indonesian districts. The Association of Indonesian District Governments (*Asosiasi Pemerintah Kabupaten Seluruh Indonesia*; APKASI) is another existing forum could allow for government-to-government support and space for dialogue between district governments to implement sustainability commitments and share positive lessons on how progress on actions is monitored, evaluated and reported, and how incentives are developed to induce actions and reward performance.

4.2 Malaysia

To achieve sustainability in the palm oil sector FGD participants outlined the importance of following through with the implementation of sustainability commitments and attaining stakeholders' acceptance of certification standards. These require collaboration through multi-stakeholder forums, alignment of federal and state policies on sustainability, and

cooperation with private sector and investors. Interventions to promote palm oil sustainability and sustainable jurisdictions have been made by relevant ministries, agencies, state governments, and the palm oil industry (MPIC 2021). Notably in connection with the introduction of MSPO certification in 2015 and the issuance of four policies regarding oil palm cultivation in 2019. The latter aim to limit the expansion of plantations to 6.5 million hectares, ban new planting of oil palm in peatlands, restrict permanent forest conversion, and make official oil palm plantation maps publicly available. Various supporting interventions have been implemented to develop high-yielding planting materials, support smallholders to adopt best agricultural practices and achieve certification through the MSPO Incentive Fund and the 12th Malaysia Plan (*Dana Rancangan Malaysia ke-12*, 2021-2025) provided by the government, improve access to financial and technical assistance, and improve palm oil traceability (MPIC 2021).

Key interventions identified by FGD participants to support transitions to sustainability include:

1. improved communication with external markets and actors;
2. capacity building and training for smallholders and other actors; and
3. strengthening support for conservation initiatives within the palm oil industry.

The current implementation of these three interventions and pathways for improvement are discussed below.

4.2.1 Improved transparency and communication

One of the main issues identified by FGD participants concerns the perception and acceptability of Malaysian palm oil and the MSPO certification standard. How MSPO certified palm oil could achieve acceptance in international markets and the extent to which this national standard is well-received by stakeholders at different levels was discussed. Despite challenges, many see potential to improve the negative perceptions of Malaysian palm oil and increase its acceptance in global markets. Participants also mentioned that sustainable practices need to be complemented by transparency and clear communications to international consumers – indicating a need for federal and other stakeholders (including state governments) to collaborate and align palm oil sustainability policies while improving strategic communication at the international level to better promote sustainability initiatives in Malaysia.

Malaysia, through its ministries and institutions such as MPIC, MPOCC, and MPOB, has initiatives in place to communicate and market Malaysian palm oil. For example, prior to the most recent Olympics in Tokyo, Japan, MPIC worked with the Tokyo 2020 Olympics and Paralympic Games Sustainable Sourcing Code Committee to have MSPO certified palm oil approved as a source for the edible and non-edible food products and soap during the games. MSPO certification was recognized alongside RSPO and ISPO certifications for sourcing. This was seen by the Primary Industries Minister, Teresa Kok as a new era in branding of Malaysian palm oil given the international recognition.[42] Further, in responding to the continuing challenges facing the global vegetable oil sector, through the Council of Palm Oil Producing Countries (CPOPC) both Indonesia and Malaysia have strengthened its alliance with other key palm oil producing nations and are promoting a global recognition of

[42] http://www.dailyexpress.com.my/news/125610/mspo-certification-adopted-by-tokyo-2020-olympics-and-paralympics-games/

the Global Framework Principles for Sustainable Palm Oil (GFP-SPO).[43] Given these along with an expansion of similar efforts, participants expected that MSPO would be increasingly acknowledged by consumer countries in its contribution to the sustainable palm oil supply chain.

Ministries and agencies have also been targeting traditional markets for Malaysian palm oil such as India and China but also looking beyond to export to Middle East and African countries while distinguishing MSPO certified oil from regular palm oil.[44] However, labor violations (i.e., forced labor) highlighted by the United States in 2020 damaged the perception of Malaysian palm oil, especially due to the Withhold Release Order (WRO) that was issued (CIFOR 2022a). Regarding the labor violations evidence presented by the United States government, the Malaysian government responded by defending the criteria for labor treatment within the MSPO standard, but more recently it has also ratified the International Labor Organization (ILO) Protocol 29 on Forced Labor[45] following up on the Malaysian palm oil industry committing to ending recruitment fees for foreign workers, which has been linked to debt bondage of workers. In addition to being aligned with ILO's indicators of forced labor, the revised MSPO standard has changed the way it accepts evidence of discrimination or intimidation – auditors must actively seek a negative finding and ensure that there is no evidence of such activities. The revised standard also states how contracts must be fairly administered between employees and employers through specific and clear (no ambiguity) requirements.[46] Further, members of the Malaysia Palm Oil Association (MPOA) are also bound to the new Responsible Employment Charter that sets out multiple reforms from the private sector to demonstrate its good labor practices.[47]

Regarding the alignment between the federal and state government, when the federal government initially mandated MSPO as the mandatory standard for sustainable palm oil, across the nation and particularly in Sabah, it was not well received by local actors. As noted by FGD participants and Onn (2021), MSPO certification was perceived as a "top-down" approach from a federal body, and that land and agriculture (the 1963 Malaysia Agreement) and management of palm oil areas are state matters and decisions on land use cannot be determined by the Federal government. Thus, alignment of federal and state level policies and initiatives, especially relating to land use, and collaboration between the two levels of government is crucial. For example, Sabah initiated a jurisdictional certification of sustainable palm oil (JCSPO) program in 2015 for RSPO since it is considered as more stringent in terms of land rights and conservation of high biodiversity areas than MSPO.[48] With the new requirement for MSPO, Sabah has been working to integrate the MSPO and jurisdictional RSPO process, with MSPO becoming a stepping stone to jurisdictional RSPO certification (Onn 2021, WWF 2021).[49] This resulted from the Sabah Forestry Department

[43] https://www.cpopc.org/the-23rd-senior-officials-meeting-of-cpopc/
[44] https://www.foodnavigator-asia.com/Article/2022/04/05/malaysian-palm-oil-sector-pushes-for-better-branding-and-consumer-communication
[45] https://www.mypalmlaborfacts.com/malaysia-ratifies-ilo-convention-another-step-forward-on-labour-rights/
[46] https://www.mypalmlaborfacts.com/malaysias-mspo-takes-big-steps-on-labour-rights-compliance/
[47] https://www.mypalmlaborfacts.com/malaysias-private-sector-palm-oil-association-launch-responsible-employment-charter/
[48] Sabah is committed to achieving 100% RSPO certificated palm oil production by 2025, protecting more than 50% of forest cover and more than 30% of land area, and enhancing nature restoration activities (https://ap-plat.nies.go.jp/inas//goodpractices/tool/6.html)
[49] https://mpoc.org.my/sabah-wants-to-be-global-leader-in-sustainable-palm-oil-production/

(SFD 2021) engaging with MPOCC and MPOB Sabah branch to complement and align the efforts for the sustainability of oil palm industry in Sabah.

Potential pathways for improvement

There have been efforts by the industry and Malaysian ministries and agencies to coordinate and have bilateral discussions with foreign governments to manage the perception of MSPO certified palm oil and associated marketing (e.g., trading arrangements with India, China and Japan, negotiations with US regarding labor violations, negotiations regarding treatment and housing of Indonesian workers in the Malaysian palm oil industry with Indonesia). However, there are some additional points for consideration to make these efforts more effective.

- Multi-stakeholder partnership is key because the 'story' of Malaysian sustainability must be convincingly told not only from the government's perspective, but also by the industry and NGOs. Any initiative tackling the perception of palm oil through communication and marketing will need to also have NGOs on board, since many of the concerns around deforestation trends or exploitation within the palm oil sector has been monitored, documented, and highlighted by NGOs and advocacy organizations. Recognition by NGOs of efforts to improve the status of and conditions within the industry is needed.
- To tackle the two main issues facing the Malaysia palm oil industry, namely deforestation and labour violations (including child labour), the revised MSPO have incorporated stronger requirements for new planting procedure and a cut-off date (31st Dec 2019) after which natural forest conversion is prohibited. The revised standard also contains more criteria on employment conditions that would ensure compliance with ILO Decent Work Agenda to prevent trafficked and child labour, and discrimination and harassment. However, these criteria/requirements need to be followed up with a robust enforcement and monitoring system that can provide evidence of proper treatment of workers and no deforestation after the agreed cut-off date (i.e., how NDPE requirements are addressed). Any communications need to be backed by evidence that is transparent, allowing for a more confident and good perception of Malaysian palm oil and demonstrating compliance with international sustainability standards (e.g., EU proposed regulations for deforestation-free commodities). The existing framework – MSPO TRACE[50] and other transparency and traceability efforts – for monitoring needs to be strengthened. The monitoring system needs to be established or re-establish confidence regarding labour treatment, especially in regard to foreign labour.
- While monitoring and evidence can be provided at the national level, there are opportunities for states and districts to establish systems to ensure that sustainability principles are followed and that the palm oil (or other commodities) produced meet international sustainability requirements. They could also provide and communicate necessary evidence to international and private sector actors to support sourcing from low-risk jurisdictions.

4.2.2 Capacity building and training for smallholders and other actors

Through discussions during the FGDs and CIFOR work assessing sustainability initiatives (CIFOR 2022b), capacity building and training of smallholders and other stakeholders to support transitions to sustainability were identified as a major need. Lack of knowledge of GAP and resulting low productivity was also identified as a major challenge for sustainability through the literature review. Despite encouraging performance, the Government of Malaysia (MPIC 2021) recognized that the palm oil industry faces significant challenges such

[50] https://mspotrace.org.my/

as falling productivity, lack of land and manpower, smallholder well-being issues. Senawi et al. (2019) suggest that adoption of MSPO would enable smallholders to transform in environmental, social and economic terms and that capacity building is the backbone of such transformation.

Some capacity building activities are currently being designed and implemented by government agencies and development partners including NGOs and the private sector, across Peninsular Malaysia, Sabah, and Sarawak. They focus on different aspects such as GAP, new plantings, HCV areas, and managing wildlife conflicts. They have been useful and important, especially in enhancing the technical capacity of smallholders and disseminating knowledge about the often-complicated details of the RSPO and MSPO certification schemes to smallholders. As part of its responsibility for organizing smallholders into Sustainable Palm Oil Clusters (SPOC) and getting them ready for MSPO certification/audits, MPOB, for example, conducts workshops and training in good agriculture practices, including the use of fertilizer, palm cropping program, farm mechanization operation, nurseries, fruit grading skills, etc. through the TUNAS program.[51]

Another existing capacity building initiative is by IDH. Through the National Initiatives For Sustainable & Climate Smart Oil Palm Smallholders (NI-SCOPS), IDH, for instance, engages technical committees in Malaysia to develop key performance indicators to measure progress towards sustainability objectives.[52] This initiative has four (4) targets: (a) improve smallholder productivity to prevent forest clearing, (b) set up a deforestation monitoring system that help identify smallholders and craft the right interventions, (c) improve the adaptive capacity of smallholders, and (d) contribute to the revision of MSPO and make the certification work for smallholders.[53] These and other similar initiatives are considered politically, administratively, legally and technically feasible as they have been supported by government agencies entering into a memorandums of understanding (MoU) with the funders and implementing partners, and by relevant experts and highly trained extension officers.

Potential pathways for improvement

There are a few additional considerations for capacity building efforts to be more effective in Malaysia.

- Capacity building initiatives may not be as effective if training is done on a piecemeal basis or in one-off workshop, as FGD participants indicated and is documented in the literature (e.g., Devaux et al. 2018, Kooijman 2021). Capacity building not only needs to increase knowledge but also trigger a change in the mindset of the farmers towards sustainability, and this can occur only with long-term support and engagement with farmers and communities. Successful farmers could also be engaged to help train other farmers (e.g., sharing sessions, train-the-trainer programs). In addition, as observed by Kannan et al. (2021), effective efforts to increase awareness also target dealers and contractors who are part of the supply chain, as smallholders often hire workers or outsource work to these actors.
- Capacity building can be increased through the expansion of the MPOB TUNAS program (needs more staff capacity) or through funding programs that are operated by NGOs by

[51] MPOB website: Courses – MPOB Portal
[52] Case study: National initiatives for sustainable & climate smart oil palm smallholders. https://www.idhsustainabletrade.com/uploaded/2021/04/20210401-Palm-Oil-Case-Study.pdf
[53] as elaborated by FGD participants

forming partnerships with them, whereby increasing the frequency and the geographic areas that capacity building support can reach.

- What is required alongside support for smallholders is funding to build capacity through the increase of staff employed, especially at the state and district institution/agency level. This can then help to better support training activities on the ground. For example, capacity development of state and district government agencies can be in developing sustainable development plans, forming multistakeholder forums/coalitions, and entering into partnership agreements (especially at the jurisdictional scale with NGOs and private sector companies). Additional funding geared towards the employment of more staff with various skills (e.g., IDH's approach) is also needed.
- Lastly, training is often conducted using language that is not easily understood by smallholders. Often, messages being communicated are similar to or an extension to what the smallholders have been practicing already. However, because of technical or foreign terms being used, it can be hard and daunting for smallholders to accept. Thus, there must be a careful focus on the communication materials and language used within capacity building programs and trainings so that stakeholders do not end up speaking across each other rendering the support ineffective.

4.2.3 Strengthening supporting for conservation initiatives within the palm oil industry

Another key intervention participants highlighted during the FGD as needing to be expanded was to increase support for conservation initiatives within the palm oil industry.

Malaysia already has established a program to fund conservation initiatives and research. As part of its commitment to conserving environment and responding to critiques of the palm oil industry destroying rainforests and wildlife habitat, in 2006 the Malaysian Palm Oil Council (MPOC) launched a program called the Malaysia Palm Oil Wildlife Conservation Fund (MPOWCF).[54] In 2021 this program became the Malaysian Palm Oil Green Conservation Fund (MPOGCF) under the MPIC. It has a revolving fund of 20 million with top ups from the government and its own cess funds, which are contributions from industry (MPOC 2022).[55] As of 2022, around 29 projects have been completed, and currently there are 10 ongoing projects in different states undertaken in collaboration with various stakeholders. This intervention targets three arenas – reforestation, wildlife conservation, and communities – and its objectives are to restore degraded lands, enhance wildlife habitat while encouraging conservation initiatives, and to improve the livelihood of nearby communities.

Various programs funded are considered politically, administratively, and legally feasible, since they have been conducted in collaboration with stakeholders including state agencies such as Sabah Forestry and Wildlife Departments in Sabah, Jabatan Perlindungan Hidupan Liar dan Taman Negara in Malaysia Peninsular. For example, through MPOGCF sponsorship, Sabah Forestry Department is planting one million trees to rehabilitate Orangutan habitat. Additionally, the National Association of Smallholders of Malaysia (PKPKM) recently collaborated with Sime Darby Plantation to organize biodiversity and high

[54] When it was launched, this program was supported by an initial funding of Ringgit Malaysia (RM) 20 million of which RM 10 million is grant from the Malaysia government and the balance of RM10 million is provided by the palm oil industry. The MPOWCF also accepts contributions from independent donors. For every ringgit contributed by an independent donor, MPOC will top it up with another ringgit. (https://mpoc.org.my/malaysian-palm-oil-wildlife-conservation-fund-mpowcf/).
[55] Generated from cess of RM1 per ton of CPO produced, collected under the MPOGCF. Estimated collection is RM20 million per year (MPIC 2021)

conservation value training aimed to get smallholders acquainted with conservation concepts and practices for their plantations.

However, FGD participants highlighted budget constraints and commented on the funds available via MPOGCF. Under the leadership of the previous Minister of MPIC (Teresa Kok), a consistent flow of funding from the industry was established. However, the fund is not always accessible to different parties and is no longer considered sufficient to support the increased number of conservation and oil palm promotion activities. Efforts to find additional funding from industry, had limited success as companies often had other priorities and/or their own conservation projects. More generally, the federal government finds it difficult to obtain funding to support on-the-ground activities. Despite the common sustainability goals, one federal government representative acknowledged the challenge of working with NGOs as many are reluctant to partner with government agencies due to greenwashing concerns.

Potential pathways for improvement

Though the MPOGCF and its predecessor MPOWCF have operated smoothly, there are some considerations for improvement.

- The amount of funding available through MPOGCF and similar efforts needs to be expanded. More funds from the national government are needed so that more projects and larger scale projects can be supported. Funds can be sourced from the national budget but also from taxes levied on the palm oil industry. A larger fund with more projects would also demonstrate to the international community and NGOs the Malaysian commitment to support conservation initiatives (this would feedback into the first key intervention discussed on communication).
- To cope with conflicting priorities between conservation and other needs, there is a need to develop a conservation plan (e.g., biodiversity conservation plan, derived from the national policy on biological diversity 2016-2025), specifically intended for oil palm plantations. The plan would serve as a reference for decision-making on budget allocation.
- Partnerships with companies need to be established and strengthened. In this case, public-private partnerships could help the government and the companies align their conservation and smallholder improvement efforts and create synergies based on the knowledge and skills the parties can bring together to achieve better results. Further, such partnerships can help access more financing for funds like MPOGCF from the private sector (i.e., budget enhancement) to increase the impact of such funds towards the goals of conservation and sustainability. Hence, smarter public-private partnerships are needed.
- Support for conservation initiatives should also include support for state and district governments to receive funds not only for actionable conservation activities but also for enabling the conservation related activities. This would include funding for the hiring of staff with technical skills, training of staff in existing regulatory and legislations to enhance enforcement, and staff training on technical conservation and sustainability related aspects (e.g., HCV areas, basic GIS mapping). This would additionally support implementation and enforcement of existing regulations.
- Strengthening of conservation initiatives also needs to include the enhancement and utilization of existing multistakeholder forums. Though many committees and councils exist, these platforms are underutilized and underfunded. Similar to public-private partnerships, these platforms can help align the efforts, goals, and objectives of the stakeholders engaging in one landscape, including national and state governments.

Such an intervention could be crucial in implementing jurisdictional approaches and charting a path towards jurisdictional sustainability in Malaysia, especially considering smallholders' livelihoods. Having funds and support for conservation initiatives within a jurisdiction from its respective stakeholders (i.e., government, companies, and NGOs) could help set up schemes that benefit smallholders and forests. Schemes could include the identification of forests areas, including those on smallholder plantations, for protection or conservation with opportunity costs for smallholders or other forested land holders to forgo cultivation of oil palm would be covered, reducing the risk of deforestation within a jurisdiction. Companies that source from jurisdictions with such schemes and need to demonstrate the production of deforestation-free palm oil would also benefit.

5. Conclusions

Towards jurisdictional sustainability. Implementation of the interventions identified in this study are not directly going to achieve jurisdictional sustainability. However, all the identified interventions contribute to and strengthen the enabling conditions or key elements of jurisdictional approaches that lead to sustainability. Interventions identified address one or more of these key elements. It can take a long time for jurisdictions to put in place jurisdictional approaches – it is a slow progress that requires having the buy-in of the relevant stakeholders – but it is important to recognize the progress being made in this process as well as the outcomes (ISEAL 2020). Assessments and feasibility surveys can help determine the status of enabling conditions allowing for decisions on where to invest funds based on progress or targets of forest and peatland protection (Paoli et al. 2016; see CIFOR-ICRAF 2022a for more details on assessment tools).

Further, as these interventions support enabling conditions, they also function to support other avenues to sustainability transitions as well (e.g., certification systems). For example, a major challenge for certification (e.g., ISPO, MSPO, RSPO, etc.) is land legality and acceptance in international markets in both Indonesia and Malaysia, which the interventions discussed here would help address.

Indonesia. There have been progressive efforts to move towards sustainability within Indonesia, particularly those in major palm oil producing jurisdictions that are part of global or national processes such as Governor's Climate & Forests (GCF) Task Force and FoKSBI's pilots for sustainable palm oil action plans. These have provided their leaders and relevant actors opportunities to make commitments and implement them on the ground. The progressive efforts are indicated by the presence of local policies relevant to sustainability and of stakeholder platforms. Despite this, the Indonesian palm oil sector is still challenged by among others conflicting interests and objectives, unclear tenurial rights over palm oil plantations, weak monitoring, reporting and verification (MRV) capacity, lack of technical capacity on the part of smallholders.

To lift jurisdictions towards sustainability and to help smallholders adopt sustainability standards, some key interventions needed include (a) clarifying land legality and tenure rights issues over oil palm plantations overlapping state forestlands (*kawasan hutan*), (b) enhancing the capacity of smallholders to increase crop productivity, strengthen farmer groups (collective action), adopt GAP and comply with sustainability standards, and (c) support and incentivize jurisdictions to implement actions plans for sustainable palm oil, low carbon and green economy development.

These key interventions are in largely politically, administratively, and legally feasible as they are in part already implemented and are supported by operational regulations and guidelines and by the governing institutions such as, government units at different levels (e.g., national and local action plans for sustainable palm oil). Technically and financially, most of the interventions are also justifiable and well supported. However, the points for consideration discussed for each of these interventions are geared towards improving the effectiveness and reach of these interventions. Though these considerations do not require an overhaul of the existing initiatives, there is some degree of rethinking and strategizing of the implementation process that will be needed. Additionally, these new changes will also need to be in line with or be incorporated into local government's development plans (e.g., RPJMD), financially supported by relevant sources of funds, and equipped with MRV for effective implementation. Further, all the three key interventions highlighted have direct

implications for jurisdictional sustainability (i.e., lifting jurisdictions to sustainability), thus the considerations can be linked to the national mid-term development plan that has prioritized jurisdictional approaches to achieve sustainability.

Malaysia. Similar to Indonesia, Malaysia has made efforts to transition to sustainability through various initiatives, regulations and legislations. Many of the efforts in Malaysia for sustainable palm oil are centred around MSPO certification scheme and national plans. Some difficult challenges identified for Malaysia included the issues of transparency and perception of the palm oil sector, conflicting interests and objectives between national and state actors and stakeholders in general, land tenure conflicts, and weaknesses in the legal framework for sustainability implementation specifically related to budget constraints as the most difficult challenges in transitioning to sustainability.

In responding to these challenges and others, with the support of FGD participants, this study also identified a few key interventions that could help in lifting smallholders and jurisdictions to sustainability. Three key interventions were highlighted as needed. The first intervention is improving transparency and communications to demonstrate the sustainability of Malaysian palm oil that is backed by enforcement of existing regulations and robust monitoring. Second, more capacity building programs of smallholders and other stakeholders towards sustainability, including staff at the state level is need. Such a program needs a careful consideration of the language used for training and communications so that ideas, techniques, and benefits and incentives of transitioning to sustainability can be communicated clearly. This can be done by establishing more programs that can target smallholders but also by support organizations currently working with smallholders. This includes the MPOB's TUNAS initiative, which was indicated by many participants surveyed as a successful initiative that should be scaled up and supported to reach more smallholders. Third, increasing the budget for conservation related activities in the palm oil industry would be key. This can be done through increasing support for existing programs like the MPOGCF but also by channelling funding to support the implementation and enforcement of existing laws that would address sustainability challenges.

Additionally, sustainability efforts can be scaled up and better aligned with state level policies and initiatives through the encouragement and development of public-private partnerships. This can be done and encouraged at both national/federal level or the state level. For example, public-private partnerships and cooperation have been established in Sabah to achieve jurisdictional level RSPO certification.

All the interventions discussed here would help in addressing some of the most difficult challenges identified in both Indonesia and Malaysia. Further, these interventions if implemented effectively would support the progress towards jurisdictional sustainability in both countries by fostering the enabling conditions or key elements of a jurisdictional approach.

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7. Appendices

Appendix 1. List of stakeholders engaged

Type of Stakeholder	Indonesia	Malaysia
Civil society organization	Yayasan EcoNusa Proforest	Hutan (Kinabatangan Orangutan Conservation Programme) WWF-Malaysia IDH Global Environment Centre (GEC) Proforest
Government	Food and Agriculture Directorate of BAPPENAS East Kalimantan Plantation Office Research and Development Agency of Ministry of Environment and Forestry West Papua Research and Development Agency East Kalimantan Provincial Environment Offices (GCF Taskforce East Kalimantan) West Papua Research and Development Agency North Kalimantan Provincial Forestry Offices Food Crops, Horticulture and Plantation Offices Kotawaringin Barat District, Central Kalimantan Plantation Offices, Kutai Kartanegara District, East Kalimantan Pulang Pisau District Research and Development Agency, Central Kalimantan Sintang District Agriculture and Plantation Offices, West Kalimantan Berau District Research and Development Agency, East Kalimantan Agriculture Offices Pulang Pisau District, Central Kalimantan.	Malaysian Palm Oil Board (MPOB) Ministry of Plantation Industries and Commodities (MPIC) Malaysian Palm Oil Certification Council (MPOCC) Malaysian Palm Oil Council (MPOC) FELDA Sabah Forestry Department
Private sector	Indonesian Association of Palm Oil Farmers (APKASINDO) Indonesian Palm Oil Concession Association (GAPKI) FORTASBI (Indonesian Sustainable Forum for Smallholders)	National Organization of Smallholders (NASH) Sarawak Dayak Oil Palm Planters Association (DOPPA) Malaysian Palm Oil Association (MPOA) Malaysian Biodiesel Association (MBA)
University	Faculty of Human Ecology of Bogor Agricultural University (IPB)	
Others	Lingkar Temu Kabupaten Lestari (LTKL)	Sabah Jurisdictional Certified Sustainable Palm Oil (JSCPO) Independent

Appendix 2. Some key figures for selected provinces and states in Malaysia and Indonesia

Country	Province / State	Oil Palm Coverage (000 Ha)[1]	Forest cover (000 Ha)[2]	No. of Smallholders[3]
Indonesia	East Kalimantan	1,287	13,290	101,027
	Central Kalimantan	1,779	7,459	74,445
	Riau	3,387	2,665	642,412
	West Kalimantan	1,8078	5,657	157,134
	North Kalimantan	235	*No data*[4]	17,160
	South Sumatra	1,468	1,550	298,855
	West Papua	59	8,967	4,567
Malaysia	Johor	741	443[5]	80,701
	Perak	392	1,010[5]	125,788
	Sabah	1,543	3,972[6]	212,199
	Sarawak	1,584	7,720[7]	234,122

[1]The Minister of Agriculture's Decree No. 833/KPTS/SR.020/M/12/2019 regarding 2019 Indonesia's Palm Oil Plantation Coverage (Indonesia) [Kepmentan No. 833/KPTS/SR.020/M/12/2019 Tahun 2019 tentang Penetapan Luas Tutupan Kelapa Sawit Indonesia tahun 2019 [JDIH BPK RI]; Malaysian Palm Oil Board (MPOB)'s Oil Palm Planted Areas as at December 2020 [https://bepi.mpob.gov.my/images/area/2020/Area_summary.pdf]

[2] Statistik Bidang Planologi Kehutanan dan Tata Lingkungan 2020 Bidang Statistik. Direktorat Jenderal Planologi Kehutanan dan Tata Lingkungan, Kementerian Lingkungan Hidup dan Kehutanan.

[3]The Directorate General of Plantation of the Ministry of Agriculture. Kementerian Pertanian Direktorat Jenderal Perkebunan » Buku Statistik Perkebunan 2019-2021(Indonesia); Minister MPOB (2020). Malaysia Oil Palm Statistics 2019. 39th Edition. MPOB, Bangi (Malaysia)

[4]North Kalimantan's forest cover is included in East Kalimantan province's figure.

[5]Jabatan Perhutanan Semenanjung Malaysia. 2020. Laporan Tahunan/Annual Report 2020. Kementerian Tenaga dan Sumber Asli. LAPORANTAHUNANJPSM2020.pdf (forestry.gov.my)

[6]Sabah Forestry Department. Annual Report 2020. SFD.AR2020.pdf (sabah.gov.my)

[7]Forest Department Sarawak. https://forestry.sarawak.gov.my/page-0-160-593-Types-and-Categories-of-Sarawak-s-Forests.html